

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:

Lifeng Wu et al.

Assignee:

Celestry Design Technologies, Inc.

Title:

Hot-Carrier Circuit Reliability Simulation

Serial No.:

09/832,933

Filing Date:

April 11, 2001

Examiner:

Unknown

Group Art Unit:

2123

Docket No.:

M-10096 US

Conf. No.:

5253

San Francisco, California September 12, 2002

Attn: Office of Petitions

Box DAC

Commissioner for Patents Washington, D.C. 20231

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR § 1.97(b)

Dear Sir:

Pursuant to 37 C.F.R. § 1.56, § 1.97 and § 1.98, the documents listed on the accompanying form PTO-1449 are called to the attention of the Examiner for the above patent application. Copies of these documents are enclosed.

Citation of these documents shall not be construed as:

- 1. an admission that the documents are necessarily prior art with respect to the instant invention;
 - 2. a representation that a search has been made, other than as described above; or
- 3. an admission that the information cited herein is, or is considered to be, material to patentability as defined in § 1.56(b).

EXPRESS MAIL LABEL

NO:

EL873331053US

Respectfully submitted,

Michael G. Cleveland

Reg. No. 46,030

LAW OFFICES OF SKJERVEN MORRILL LLP 3 EMBARCADERO CENTER SUITE 2800 SAN FRANCISCO, CA 94111 (415) 217-6000 FAX (415) 434-0646

892205 v1

| | | | <u> </u> | | | | | Shee | | | |
|--|-----------------|--|------------------|--|----------------|------------------|----------------------------|----------------|--|--|--|
| U.S. Department of Commerce, Patent and Trademark Office | | | | | | Atty Docket No. | | Application No | | | |
| | | | | | | M-10096 US | | | | | |
| NEORMATION DISCLOSURE STATEMENT BY APPLICANT | | | | | | Applicant(s) | | | | | |
| (Use several sheets if necessary) | | | | | | Lifeng Wu et al. | | | | | |
| SFP 1 2 2002 23 | | | | | Filing Date | | Group | | | | |
| 4 | | | | | April 11, 2001 | | 2123 | | | | |
| ZS TRAU | est. | | U.S. P | atent Documents | | | | | | | |
| *Examiner Initial | | Document Number | Date | Name | Class | Subclass | Filing Date If Appropriate | | | | |
| | AA | 5,533,197 | Jul. 2, 1996 | Moran et al. | | | | | | | |
| | AB | 5,600,578 | Feb. 4, 1997 | Fang et al. | | | | | | | |
| | AC | 5,606,518 | Feb. 25, 1997 | Fang et al. | | | | | | | |
| | AD | 5,634,001 | May 27, 1997 | Mittl et al. | | | | | | | |
| · | AE | 5,974,247 | Oct. 26, 1999 | Yonezawa | | | | - | | | |
| | AF | 6,024,478 | Feb. 15, 2000 | Yamamoto | | | | | | | |
| | AG | 6,047,247 | Apr. 4, 2000 | Iwanishi et al. | | | _ | | | | |
| | AH | 6,278,964 | Aug. 21, 2001 | Fang et al. | | | | | | | |
| | | | Foreign | Patent Documents | | <u></u> | | | | | |
| | | | | | | Tran | slatio | | | | |
| | | Document | Date | Country | Class | Subclass | Yes | N | | | |
| | | | | | | | | | | | |
| | , | OTHER A | RT (Including Au | thor, Title, Date, Pert | inent Pages, I | Etc.) | | | | | |
| | AI V | Karam, Medhat, et al., "Implmentation of Hot-Carrier Reliability Simulation in Eldo" and related Internet material, Deep Submicron Technical Publication, dated September 2000. | | | | | | | | | |
| | AJ v | Lou, Choon-Leong, et al., "A Novel Single-Device DC Method for Extraction of the Effective Mobility and Source-Drain Resistances of Fresh and Hot-Carrier Degraded Drain-Engineered MOSFET's", IEEE | | | | | | | | | |
| | AK | Transactions on Electron Devices, Vol. 45. No. 6, June 1998, pp. 1317-1323. Wong, H., et al., "Simulation of Hot-Carrier Reliability in MOS Integrated Circuits", PROC. 21 st International Conference on Microelectronics, Vol. 2, NIS, Yugoslavia, September 14-17, 1997, pp. 625-628. | | | | | | | | | |
| | AL 🗸 | Hwang, Nam, et al., "Hot-Carrier Induced Series Resistance Enhancement Model (HISREM) of nMOSFET'S for Circuit Simulations and Reliability Projections", Microelectronics and Reliability, Vol. 35, No. 2, pp. 225-239, February 1995, pp. 225-239. | | | | | | | | | |
| | AM . – | Aur, S., et al., "I Technology, pp. | | urrier Effects for LDD | Mosfets", 198 | 5 Symposium of | FVLSI | | | | |
| | AN | | | rier Degradation Mode ity Simulation", IEEE, | | | Issues for | | | | |
| Examiner | Date Considered | | | | | | | | | | |

Express Mail No.: EL873331053US

| U.S. Departm | ent of Co | mmerce, Patent and | Atty Dock | Application No. | | | | | | | | |
|----------------------|-----------|---|-------------------|--|----------------|------------------|----------------------------|----|--|--|--|--|
| | | | M-10096 U | 09/832,933 | | | | | | | | |
| PINEO. | RMATIC | N DISCLOSURE S | Applicant(s) | | | | | | | | | |
| 10 | <u>S</u> | (Use several shee | Lifeng Wu et al. | | | | | | | | | |
| SEP 1 2 20 | 12 E | | Filing Date | Group | | | | | | | | |
| \ . | Ĕ, | | April 11, 2001 | | 2123 | | | | | | | |
| TENTS TRADE | | | U.S. Pat | tent Documents | | | | | | | | |
| *Examiner Initial | | Document Number | Date | Name | Class | Subclass | Filing Date If Appropriate | | | | | |
| | | | | | | | | | | | | |
| | | | Foreign P | atent Documents | | - | | | | | | |
| | | | | | | | Translation | | | | | |
| | | Document | Date | Country | Class | Subclass | Yes | No | | | | |
| | | | | | | | <u> </u> | | | | | |
| | | OTHER AR | T (Including Auth | or, Title, Date, Pert | inent Pages, E | Etc.) | | | | | | |
| | AO | Hu, Chenming, "IC Reliability Simulation", IEEE Journal of Solid-State Circuits, Vol. 27, No. 3, March 1992, pp. 241-246. | | | | | | | | | | |
| | AP | Jiang, Wenjie, et al., "Assessing Circuit-Level Hot-Carrier Reliability", IEEE, 1998, pp. 173-179. | | | | | | | | | | |
| | AQ | Ling, C.H., et al., "Simulation of Logarithmic Time Dependence of Hot Carrier Degradation in PMOSFETs", Semicond. Sci. Technol. 10, 1995, pp. 1659-1666. | | | | | | | | | | |
| | AR | Li, Chester C., et al., "A New Bi-directional PMOSFET Hot-Carrier Degradation Model for Circuit Reliability Simulation", IEEE, 1992, pp. 20.7.1-20.7.4. | | | | | | | | | | |
| | AS | Quader, Khandker N., et al., "A Bidirectional NMOSFET Current Reduction Model for Simulation of Hot-Carrier-Induced Circuit Degradation", IEEE Transactions on Electron Devices, Vol. 40, No. 12, December 1993, pp. 2245-2254. | | | | | | | | | | |
| | AT | | | | | | | | | | | |
| | AU | | | egrated-Circuit Reliat Circuits, Vol. 27, No | | | | \$ | | | | |
| | AV_ | Anaylsis", Interna | | SFET Hot Carrier Mo on VLSI Technology 87. | | | | | | | | |
| Examiner | | | Date Considered | | | | | | | | | |
| | | | | citation is in conform by of this form with y | | | | | | | | |

Express Mail No.: EL873331053US